The Builder.

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SATURDAY, JANUARY 31, 1852.

GENTLE Reader, as the novelists formerly called you,—hoping by "blarney" to propitiate,—we are about to ring gently a few changes on BELLS:—

"The bells and chimes of Motherland,
Of England green and old,
That out from grey and ivied tower
A thousand years have tolled."

It will not be a *peal*, for this in strictness means a performance of not less than 5,000 changes, but simply what is known as "a short touch:" nor shall we deal with bob-triples, bob-majors, or grandsire-bob-cators,—with the dodges called "hunting," and "snapping," or any of the other worse than Eleusinian mysteries of those well-known unknowns the College Youths, who have figured on belfry tablets for these last two or three hundred years, and had their name, it seems, from meeting to practice at St. Michael's, on College-hill, London. This church, by the way, was rebuilt by that redoubtable hero of the nursery who was brought back to London by the bells, which seemed to say to him:—

"Turn again, Whittington,
Thrice Lord Mayor of London."

He was buried here too, and it is just possible, we may suggest, that the story had something to do with the meeting together of this most ancient society of ringers, the aforesaid College Youths. It is not, however, of their art and doings, or of the out-of-place pranks of some of their followers and imitators that we would deal, but rather with the Bell itself; the story it tells, its founding, and its hanging. There are few of true metal themselves who can listen to the outbreaking bells without emotion. What wonder is it, then, that so many poets, giving utterance to these feelings, should have sung of the bells,—Schiller singing longest and loftiest? Longfellow, the last, makes his Friar at Strasburg cease his discourse when the bells begin to chime:—

"For the bells themselves are the best of preachers;
Their brazen lips are learned teachers,
From their pulpits of stone, in the upper air,
Sounding aloft, without crack or flaw,
Shriller than trumpets under the Law,
Now a sermon and now a prayer.
The clangorous hammer is the tongue,
This way, that way, beaten and swung,
From mouth of brass, as from Mouth of Gold,
May be taught the Testaments, New and Old.
And above it the great cross beam of wood
Representeth the Holy Rood,
Upon which, like the bell, our hopes are hung.
And the wheel wherewith it is swayed and rung
Is the mind of man, that round and round
Sways, and maketh the tongue to sound!
And the rope, with its twisted cordage three,
Denoteth the Scriptural Trinity
Of Morals, and Symbols, and History;
And the upward and downward motions show
That we touch upon matters high and low."

What say the old couplets, though in another tongue,—

"I praise the true God, call the people, convene the clergy,
I mourn the dead, dispel the pestilence, and grace festivals."

"Lightning and thunder I break asunder," is often part of the motto inscribed on them. And on others we find, simpler and more touching,—"we rejoice with the joyful, we grieve with the sorrowful:" or, better still as it stands in the bells' own tongue,—bells have always spoken Latin,—

"Gaudemus gaudentibus,
Dolemus dolentibus."

The great antiquity of bells is undoubted, but the date of their introduction is unknown. The instruction in *Exodus* that there should be a golden bell and a pomegranate alternately on the priest's garments, will be remembered. The Greeks and the Romans used them. In the sixth century, at all events, they were in use for the Christian church. They were variously called Signum (showing connection with a signal), Campana, and Nola (because a Bishop of *Nola*, in *Campania*, is supposed by some, on slight grounds, to have first introduced them to Italy; though others say because they were made of Campanian brass), *Tintinnabulum* (from the sound they give?), and Codon. The Curfew bell, and the marriage bell, and the passing bell, have their own associations, and tell their own story. Bells are blessed, if not baptised, by the Roman Catholic Church,—with the desire anciently to render them effectual in driving away evil spirits. According to the Rev. A. Gatty, in a pleasant and comprehensive little book, called "The Bell,"* "It is not very clear when this custom began; some say under Pope John XIII. (A.D. 970): but it must have prevailed long before his time, as in the capitulars of Charlemagne (A.D. 789), the baptism of bells is distinctly forbidden,—"*ut cloccæ non baptizentur.*" Some years ago, in one of our continental rambles, we were present at the consecration of a bell at Bayeux, in Normandy, and have elsewhere described the occurrence.† The bell was suspended from a scaffold on the east side of the tower, near it was a temporary altar, and around it priests, vergers, chorister-boys, with robes, and crosses, and lanterns: about a hundred females composed the assembly. Prayers were read, the bell was sprinkled, anointed, and fumigated twice; a napkin was tied round the clapper, and its name was declared to be *Clementine*.

We gave, a short time since, the weights of some of the principal bells, and need not now repeat the enumeration. None of them come near the King of Bells, in Russia, the weight of which is said to be 443,772 lbs. The diameter of it is 22 feet 5 inches. It seems that it was fractured in the casting, and remained nearly two centuries partially buried in its mother pit. It is now placed in view, and is perhaps more useful (failure though it be) as giving an impulse to mind, than it would have been, if put out of sight to perform its real office. To "raise it," as the ringers call the first movement for ringing, would have been almost impossible.

Amongst the largest bells of the present time is the great bell at Montreal, which was cast in 1847, by Messrs. Mears, of Whitechapel. This is 8 feet 7 inches in diameter at the mouth, 8 feet 1 inch high, to the top of the crown, and weighs 30,800 lbs. This same firm cast "Great Peter of York," which weighs 26,800 lbs., also the new "Tom o' Lincoln," and such a startling list of ordinary church bells, that we have been led to analyse it, and find it embraces 11 peals of 12 bells, 27 of 10 bells, 172 of 8 bells, 260 of 6 bells, 73 of 5 bells, and about 190,000 single *tintinnabula!* A tolerable evidence, in itself, of the extent of modern churchbuilding. We journeyed to Whitechapel the other day, to see a set of bells cast, intended for Port Phillip, Melbourne. Everything was ready for the operation. In the furnace there were nearly six tons of molten metal, a sea of fire when stirred by the men, consisting of copper and tin in certain proportions. The moulds were in their places, and the "gutters" formed. While the men are sweeping the burning embers out of the latter, placed there to heat them, so that the metal may receive no chill, we will tell you something of the previous arrangements.

The inner mould, or core, of the bell is built up of brickwork, having a hollow left in the centre of it for a fire, and the face of this core is covered with a composition of clay and other materials, and moulded into the shape of the *inside* of the bell. It is then baked by means of the fire in the hollow, and when hard, is coated with another composition, which is made to take the exact shape of the *outside* of the bell, and is also hardened by the fire; after which the inscriptions and any desired ornaments are placed upon it in relief. Over this the outer mould, or "cope," is formed, and the whole having been burnt, the cope is taken off, and the inner thickness of composition, representing the bell, is removed; so that when the cope is again put over the core, there is, of course, a space between the two, of the shape and thickness of the bell, and into this the metal is allowed to run. One necessary precaution is to leave a hole in the cap of the mould, besides the orifice through which the metal runs, to allow the air to escape: the omission of this would be fatal to the process. For large bells the formation of the mould takes place in a pit dug in the ground near the furnace, but the moulds of smaller size are formed in the workshops and placed afterwards in holes dug for the purpose. When in the pit the earth is rammed firmly round it, leaving nothing exposed but the holes in the cap, and from these a channel, technically called a "gutter," is cut to the mouth of the furnace. When a number of bells are to be cast at the same time, various gutters are formed from the furnace-mouth, and a metal spade, called a "slice," is used to cut off the communications between the gutters and the various moulds. When the first mould is seen to be full, the slice is withdrawn, and the metal is allowed to flow into the next, and so on.

The moment was now come, the metal was of the right proportions (tried by occasional *assays*) and the right temperature, almost as important, and the men took a final glance around to see that the whole was correct. As Schiller says:—

"Is it in the ground well bedded?
Is the mould well set and steadied?
Skill and diligence to pay
Will it issue fair to-day?
Should the cast not hit—
Should the coping split!
Ah, perhaps, while hope elates us,
Now—e'en now—mishap awaits us!"

But in Mears' foundry, it seems, mishap is never dreamt of: two or three blows with a point, at the clay-stopped hole in the furnace-mouth, and out rushes a vivid streak of fire, bubbles along the gutter and pours into the first mould:—

"Smoking where the gutter bows
Fierce in fiery waves it flows."

When the red metal bubbles up through the

* The Bell: its Origin, History, and Uses. Published by George Bell, Fleet-street.
† The Churches of London, vol. II.

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